

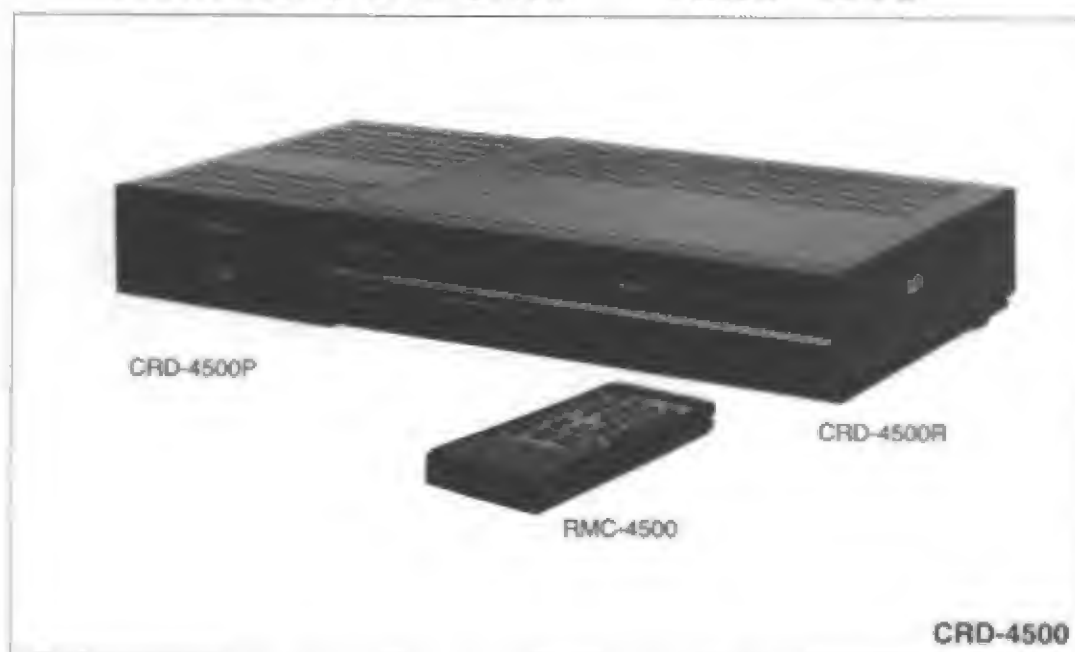
Operating Instructions

VIDEO CIPHER II

**INTEGRATED SATELLITE RECEIVER/
POSITIONER/DESCRAMBLER**

Model No. CRD-4500

Satellite Receiver	CRD-4500R
Power Supply	CRD-4500P
Remote Controller	RMC-4500



Panasonic®

Read these instructions completely, before operating this set.

INTRODUCTION

■ DEAR PANASONIC CUSTOMER

Congratulation on your purchase of a new Panasonic CRD-4500 Integrated Satellite Receiver/Positioner/Descrambler. It represents the state-of-the-art in television viewing. CRD-4500 is an integrated satellite receiver/positioner/descrambler composed of a receiver unit [CRD-4500R]; a power supply [CRD-4500P]; a remote controller [RMC-4500]; and a built-in descrambler [VideoCipher II].

■ CUSTOMER'S RECORD

MODEL NUMBER	SERIAL NUMBER	ADDRESS NUMBER (VC II) 12 Nos.*
CRD-4500R		
CRD-4500P		

* See page 23.

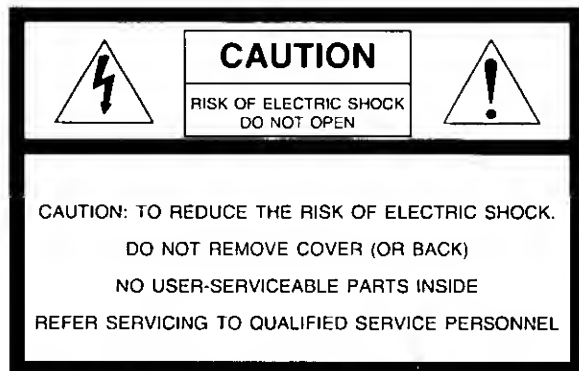
IMPORTANT SAFETY NOTICE

WARNING:

To prevent damage which may result in fire or shock hazard, do not expose this appliance to rain or moisture.

WARNING:

Remove plug from wall outlet when the unit is not in use for a prolonged period of time.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

"This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications set forth in Subpart J of Part 15 of the FCC Rules. If this equipment does cause interference to radio or television reception which can be determined by turning the equipment on and off, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver."

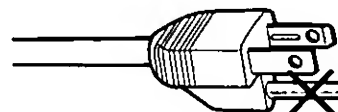
To comply with FCC rules regarding emission limits, shielded cables must be used when connecting this device to other equipment.

CAUTION:

Do not remove the grounding pin on the power plug.

This equipment is equipped with a three grounding-type power plug. This plug will only fit a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician.

Do not defeat the purpose of the grounding plug.



Do not remove

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

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GENERAL DESCRIPTION

■ Panasonic [CRD-4500] Integrated Receiver/Positioner/Descrambler

Introducing the CRD-4500, a new Integrated Receiver/Positioner/Descrambler from Panasonic. The CRD-4500 combines Panasonic's receiver expertise and the full technological compatibility that you need to enjoy scrambled broadcasts. Its built-in descrambler is the VideoCipher II, the premium standard in today's satellite broadcast industry. This slim, ultra-light IRD is brimming with state-of-the-art performance. An on-screen display puts relevant information right where you can see it. A full function UHF remote control is provided. Surround circuit adds listening excitement, while 18-channel memory simplifies operation.

* VideoCipher II is a registered trademark of the VIDEOCIPHER Division of General Instrument Corporation.

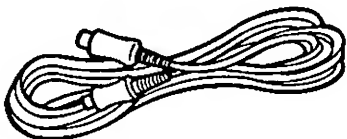
■ Features/Capabilities

- * Built-in VideoCipher II Descrambler
- * Block Down Conversion (950-1450MHz)
- * C/Ku compatible tuning
- * On-screen displays
- * Built-in Programmable Actuator Controller for automatic antenna positioning with 30 satellite memory capacity
- * 18 channels favorite program recall
- * Full function UHF remote controller including VideoCipher II functions (42 functions)
- * Surround sound system
- * Digital stereo sound (on VideoCipher II channels only)
- * Built-in RF modulator with channel 3/4 switch
- * Programmed satellite information
- * Direct satellite access
- * Parental lock per sat./channel (on favorite channel)
- * Audio subcarrier frequency tuning setting

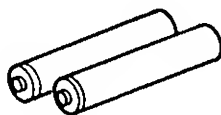
ACCESSORIES

■ Accessories packed with your satellite receiver [CRD-4500R]

Connecting Cable 1 pc.
[TSX4270]



Batteries for Remote 2 pcs
[AA:UM-3]



Remote Controller 1 pc.
[RMC-4500]



UHF Antenna 1 pc.
[TSA110005]



■ Accessory packed with your power supply [CRD-4500P]

Set Legs 4 pcs
[TMK83908-2]

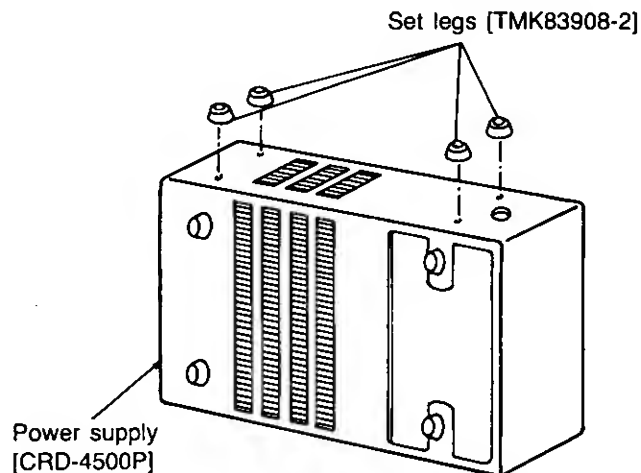


ATTACHMENT OF THE SET LEGS

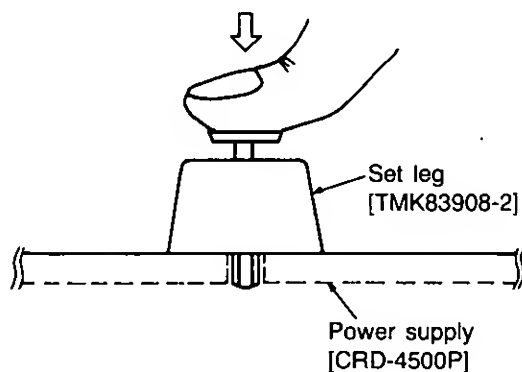
■ Attachment of the Set Legs

The power supply may be installed either horizontal or vertical. These are 2 sets of mounting holes for the set legs, and an extra set of legs supplied with the unit. If it is desired to install the power supply in the vertical position, insert the extra legs as shown.

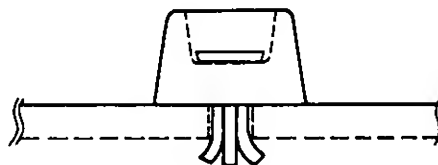
- 1 Insert the set legs [TMK83908-2] to the four holes located on the right side of the power supply.



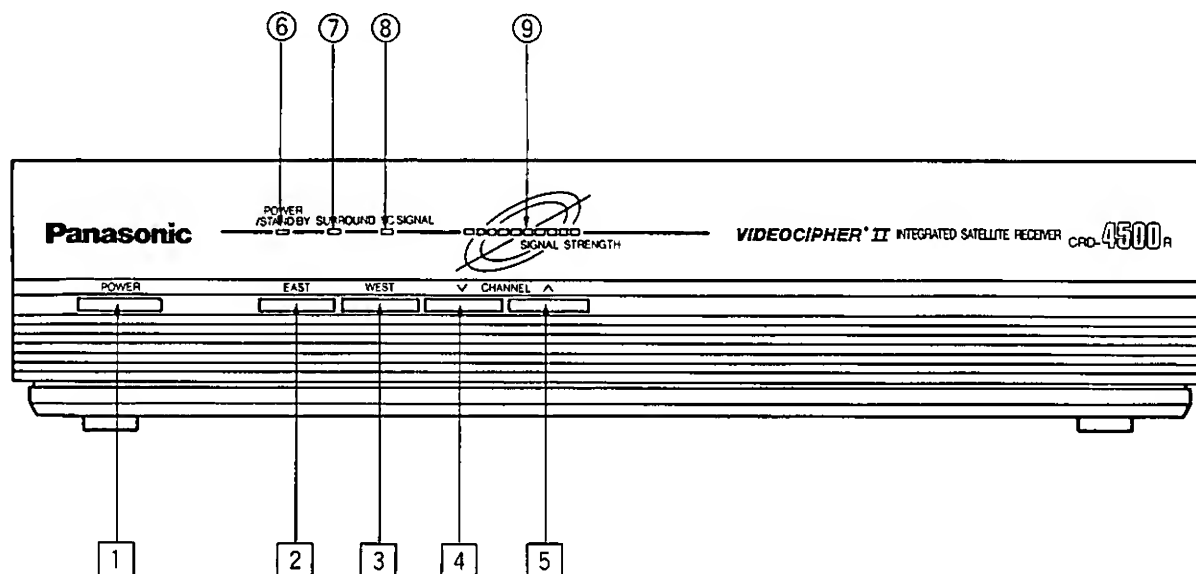
- 2 Press down hard on the button on the upper part of the set leg.



- 3 Confirm that all the set legs are fixed firmly on the set. (If the set leg is not fixed firmly, press the button further down until it locks.)



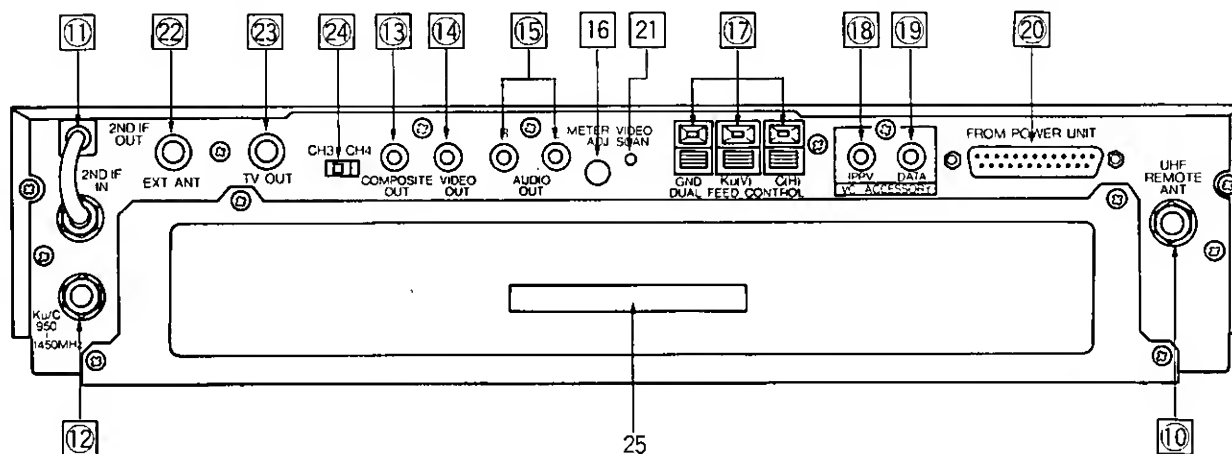
FRONT CONTROLS AND INDICATORS [CRD-4500R]



ITEM NO.	PURPOSE
1 POWER	Turns the unit ON or OFF.
2 EAST	Causes the antenna to be positioned towards the next east satellite.
3 WEST	Causes the antenna to be positioned towards the next west satellite.
4 CHANNEL V	Tunes to a lower channel.
5 CHANNEL ^	Tunes to a higher channel.
6 POWER/STAND BY INDICATOR	Indicates when the power of this unit is turned ON (red), or the unit is in stand-by mode (green).
7 SURROUND INDICATOR	Indicates SURROUND mode selected.
8 VC SIGNAL INDICATOR	Indicates when the system is receiving a VideoCipher II signal.
9 SIGNAL STRENGTH INDICATOR	Indicates the relative strength of the signal being received.

Note: □ ... Controls
○ ... Indicators

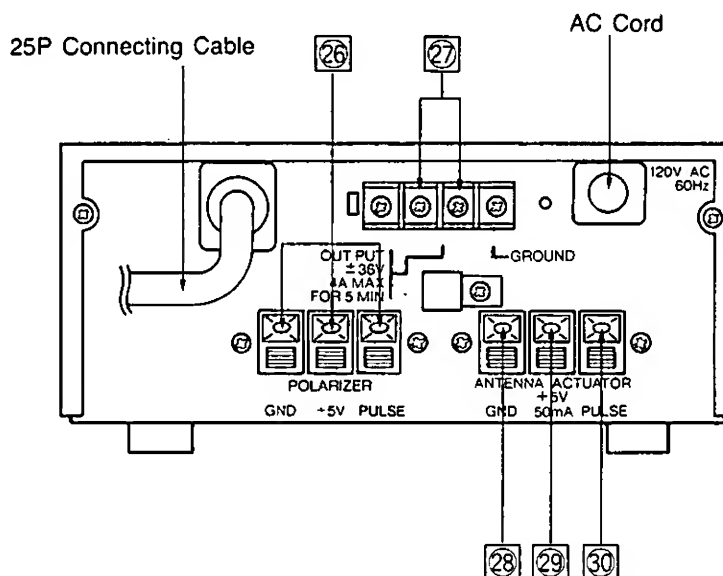
REAR CONTROLS AND TERMINALS [CRD-4500R]



ITEM NO.	PURPOSE
10 UHF REMOTE ANT	Connector for UHF antenna.
11 2ND IF LOOP	Provides 510MHz (2nd IF) signal loop for optional TI filter Installation.
12 IF IN/+18V DC OUTPUT TERMINAL	Input connector for signal from LNB. Also supplies power to the LNB.
13 COMPOSITE OUTPUT TERMINAL	Composite baseband signal to other descramblers.
14 VIDEO OUTPUT TERMINAL	Video signal to video monitor.
15 AUDIO OUTPUT TERMINALS	Audio signal to stereo monitor.
16 METER ADJUST	Normalizes the signal strength meter.
17 DUAL FEED CONTROL TERMINALS	Control Voltages to V/H, Ku/C switch for Dual LNB System.
18 IPPV	RCA-type connector for future applications. (Pay per view subscription for special programs when available.)
19 DATA	
20 25 PIN TERMINAL	To connect the power cable from the power supply.
21 VIDEO SCAN ON/OFF	Scans from the lowest frequency channel to the highest while in the "ON" position. Use to locate satellites when moving antenna. Set Ku or C-Band as appropriate.
22 EXT. ANTENNA TERMINAL	Input from external VHF antenna.
23 TV RF OUTPUT TERMINAL	VHF signal to TV.
24 CHANNEL CH3/CH4	Selects Channel 3 or 4 output of CRD-4500 to the television. Choose the channel that is not broadcast locally and tune TV to this channel.
25 VIDEOCIPHER ADDRESS NO.	You can read the first 8 numbers of your Authorization (Address) Number through this window. See page 23~26 for directions to read your full 12-digit number. Use this No. for program subscription.

Note: □ ... Controls
☒ ... Terminals

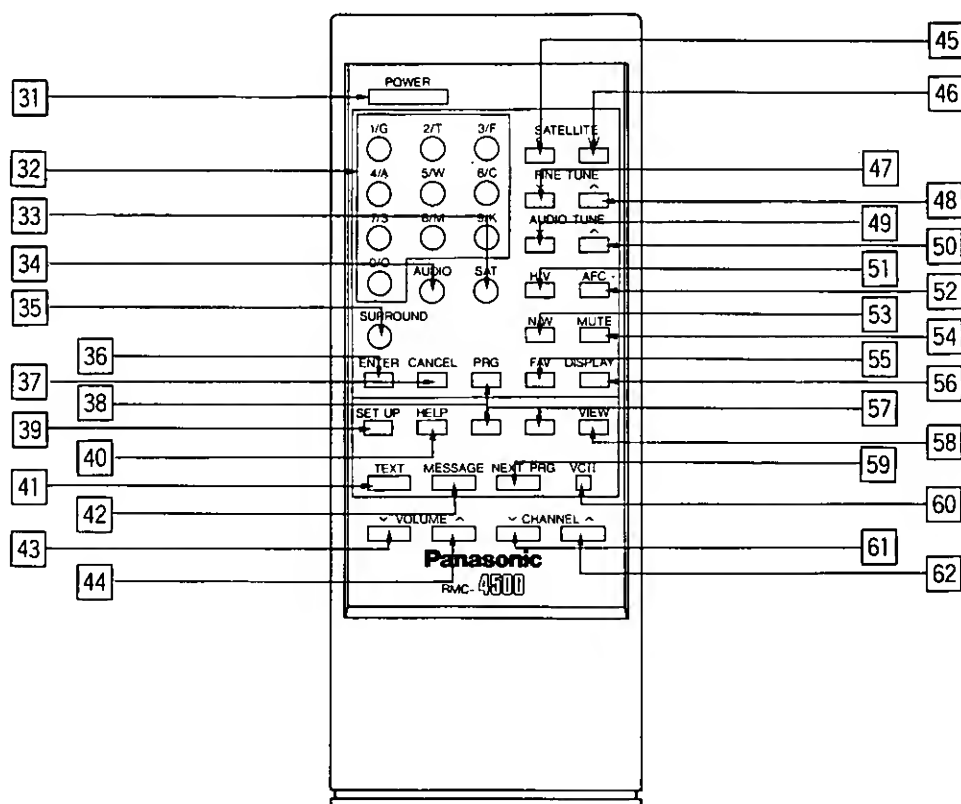
REAR TERMINALS [CRD-4500P]



ITEM NO.	PURPOSE
26 POLARIZATION CONTROL SIGNAL TERMINAL	Polarizer signal outputs.
27 ±36V/±36V TERMINAL	±36V DC output to actuator motor.
28 GND TERMINAL	Signal ground conductor from actuator.
29 DC 5V TERMINAL	5V DC (50 mA) output to supply Hall or Optical sensor in actuator.
30 PULSE TERMINAL	Connection from the sensor pulse output of the actuator. (Reed switch, hall sensor or optical type)

Note: □ ... Terminals

REMOTE CONTROLLER [RMC-4500]



ITEM NO.	PURPOSE
31 POWER	Turns the receiver ON and OFF.
32 NUMBER BUTTONS	Used to program and select satellite and channel by direct access.
33 SAT	Used to select the satellite mode.
34 AUDIO	Used to set audio frequency.
35 SURROUND	Used to select surround mode.
36 ENTER	Used to input data and for VideoCipher II operation.
37 CANCEL	Used to delete data and for VideoCipher II operation.
38 PRG	Used to select program mode.
39 SET UP	Use this button along with the number buttons to display your Authorization Number and set up your VideoCipher II channel services and features.
40 HELP	Press this button to read instructional text about setting up your VideoCipher II features and controls.
41 TEXT	Some VideoCipher II channels provide text information to their users. These messages may include news bulletins, program promotions and other special notes. Use this button to read channel and service related text on your TV screen.

Note: □ ... Controls

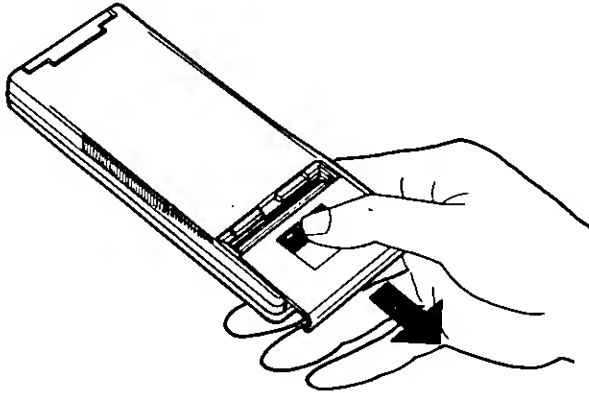
ITEM NO.	PURPOSE
42 MESSAGE	Occasionally, your program supplier may have a personal message for your subscription. If there is a message for you, you will see a flashing asterisk (*) in the upper right corner of your TV screen. Press this button to read messages on your TV screen.
43 VOLUME ▾	Decreases the audio volume.
44 VOLUME ▴	Increases the audio volume.
45 EAST	Causes the antenna to be positioned towards the east.
46 WEST	Causes the antenna to be positioned towards the west.
47 FINE TUNE ▾	Use to optimize picture quality. (only when AFC switch is OFF)
48 FINE TUNE ▴	
49 AUDIO TUNE ▾	Decreases audio subcarrier frequency.
50 AUDIO TUNE ▴	Increases audio subcarrier frequency.
51 POLARIZATION V/H	Reverses the polarizer signal format. (only in set up mode)
52 AFC ON/OFF	Activates and deactivates the AFC tuning system. (Automatic Frequency Control)
53 N/W	Selection of bandwidth of audio IF band. (Narrow/Wide)
54 MUTE	Mutes the audio.
55 FAV	Displays FAV channel mode.
56 DISPLAY	Calls up receiver on-screen display data.
57 </>	Use these buttons to move back and forth in the VideoCipher II text files or to change program rating limits.
58 VIEW	Use this button to check the program title, running time and other information about the program you are watching.
59 NEXT PRG	This button allows you to see information about the next scheduled program on a VideoCipher II channel.
60 VC II ON/OFF	Turns the VC II ON and OFF when VideoCipher II signal is present.
61 CHANNEL ▾	Tunes the receiver to a lower channel.
62 CHANNEL ▴	Tunes the receiver to a higher channel.

BATTERY REPLACEMENT

Open the battery cover by sliding the panel away from the body. Insert the two AA batteries (UM-3) into the battery compartment.

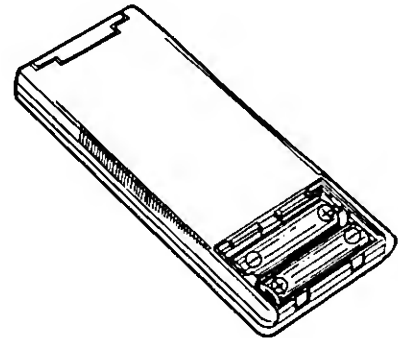
● To install the remote controller batteries.

i) Slide the panel away.



ii) Replace all batteries at the same time.

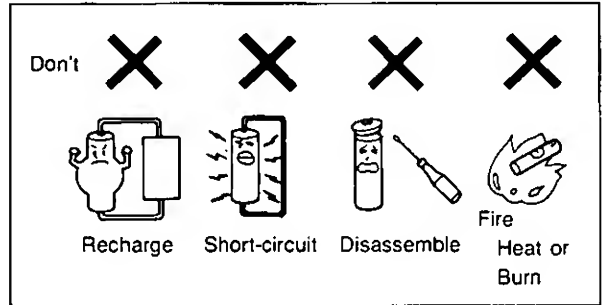
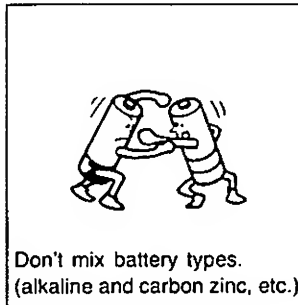
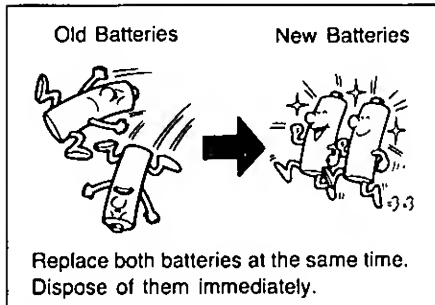
iii) Insert batteries with the correct polarity.



iv) Replace the panel.

Battery precautions

The incorrect use of batteries can cause electrolyte leakage which will corrode the remote control transmitter or cause the batteries to explode. The following precautions must be observed carefully.



Note:

1. The remote control transmitter should be placed to avoid direct sunlight or heat.
2. Pressing more than two buttons at a time can lead to an incorrect command.

LOW NOISE BLOCK DOWN CONVERTER

- The receiver uses Low Noise Block Down Converters (C or Ku-Band LNB) for its microwave interface. The output frequency range is 950 to 1450MHz. Power is supplied to the LNB via its output F connector.

Note:

The receiver is capable of supplying 18 V DC at 300 milliamps max from the input F connector.

- This is sufficient for one LNB and one Line Amplifier. The breakdown is shown below.

Line Amp (+20 dB)	100 milliamps max
LNB	200 milliamps max

- If the line amp used only 25 milliamps, then four line amps can be used.

CONNECTIONS

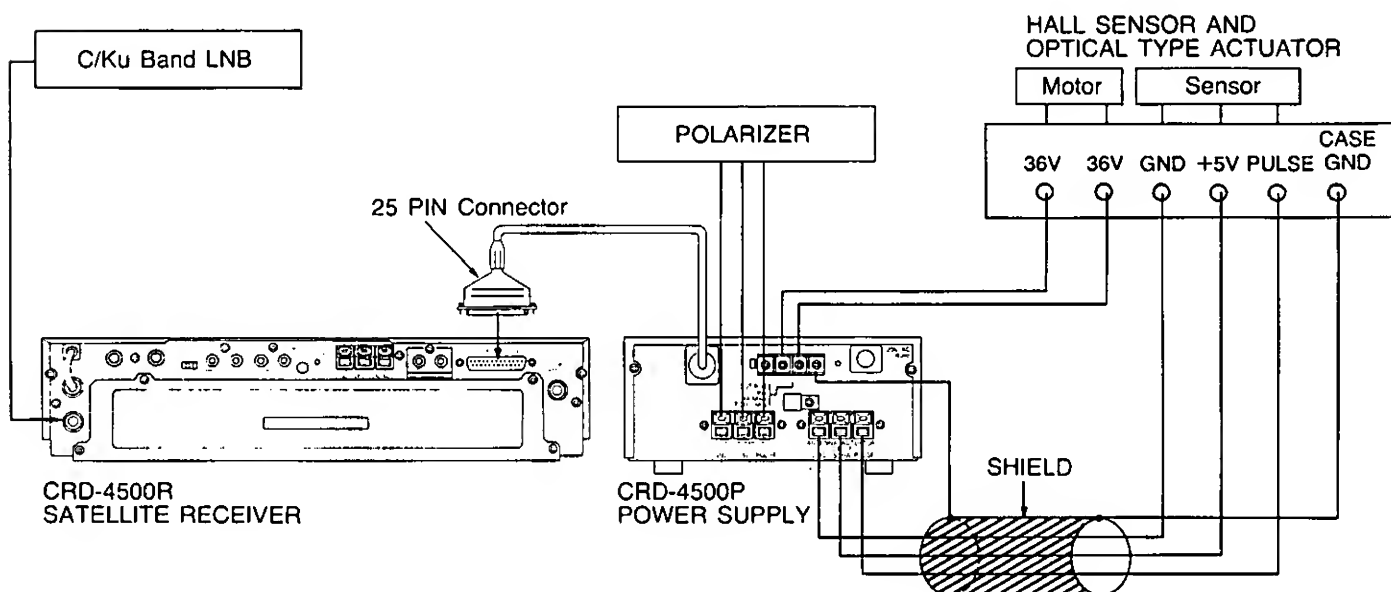
CAUTION:

Inproper connection of accessories (or connection to incompatible equipment) may damage your unit. All connections should be made with the power supply unplugged.

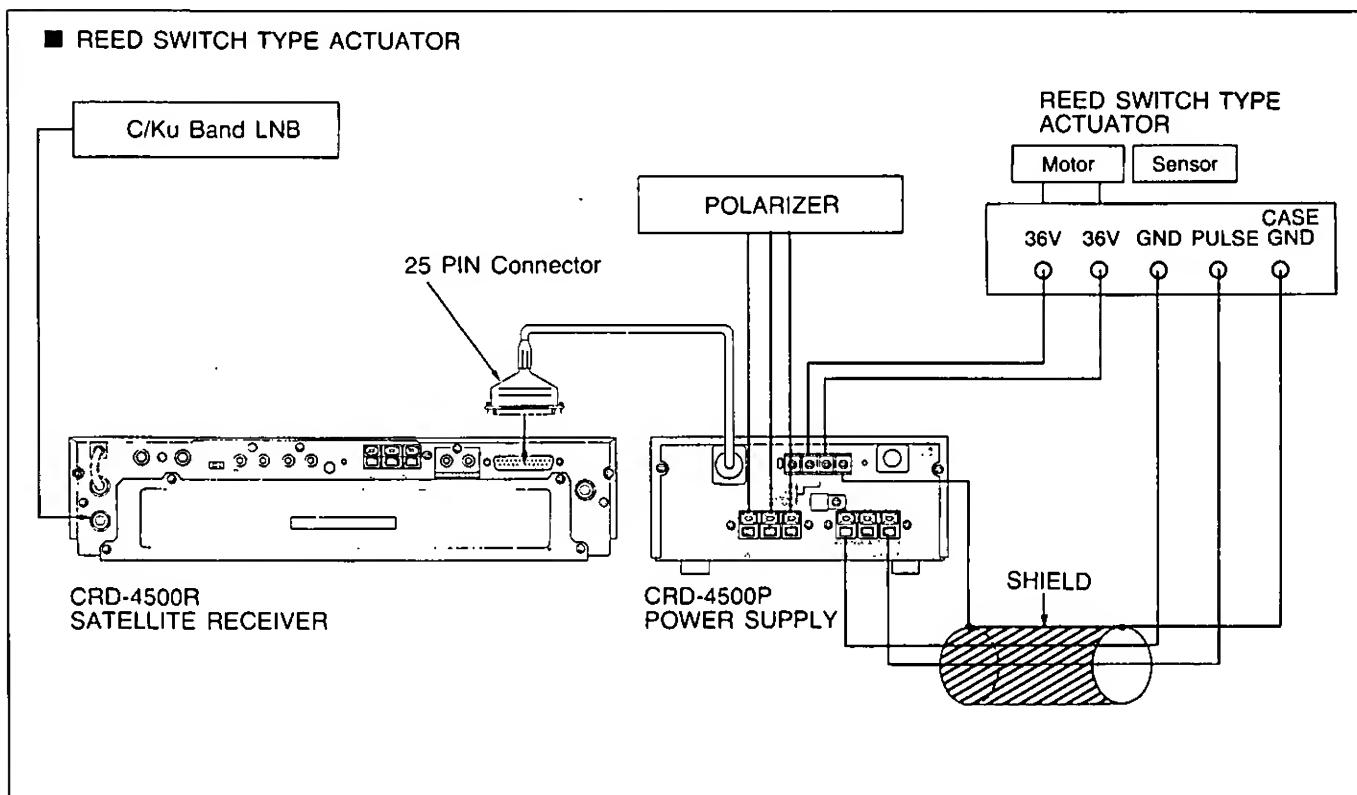
1 CONNECTION OF OUTDOOR UNIT

- Insert the 25 PIN connector of the power supply [CRD-4500P], to the connector terminal located on the rear panel of the satellite receiver [CRD-4500R] and tighten the locking screws.
- Connect LNB down converter to the receiver and connect the polarizer and actuator to power supply.

■ HALL SENSOR AND OPTICAL TYPE ACTUATOR



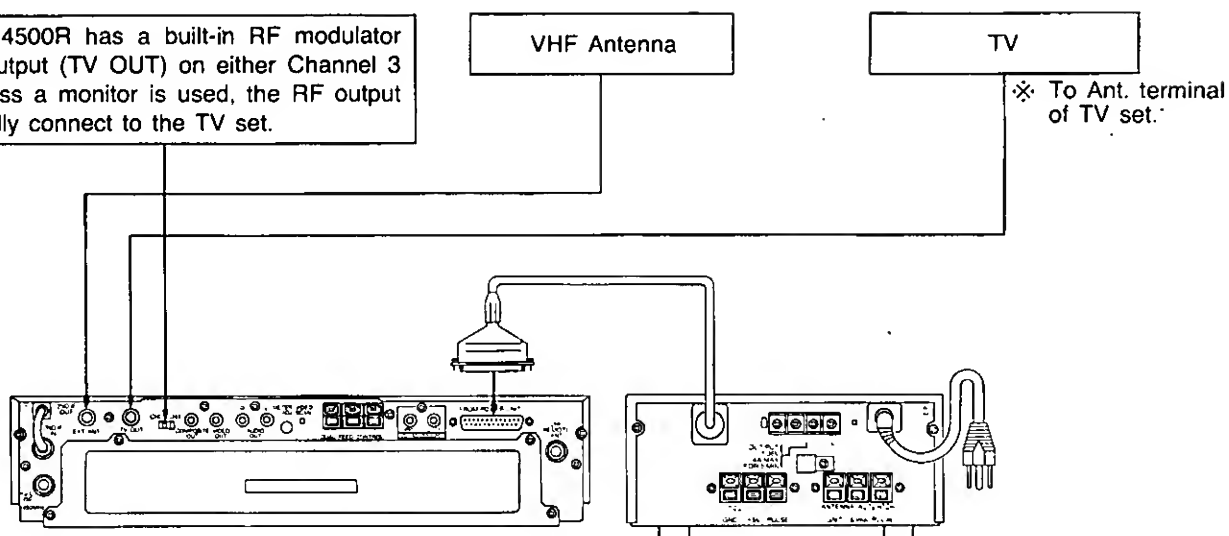
■ REED SWITCH TYPE ACTUATOR



2 EXT. ANTENNA AND TV OUT TERMINAL

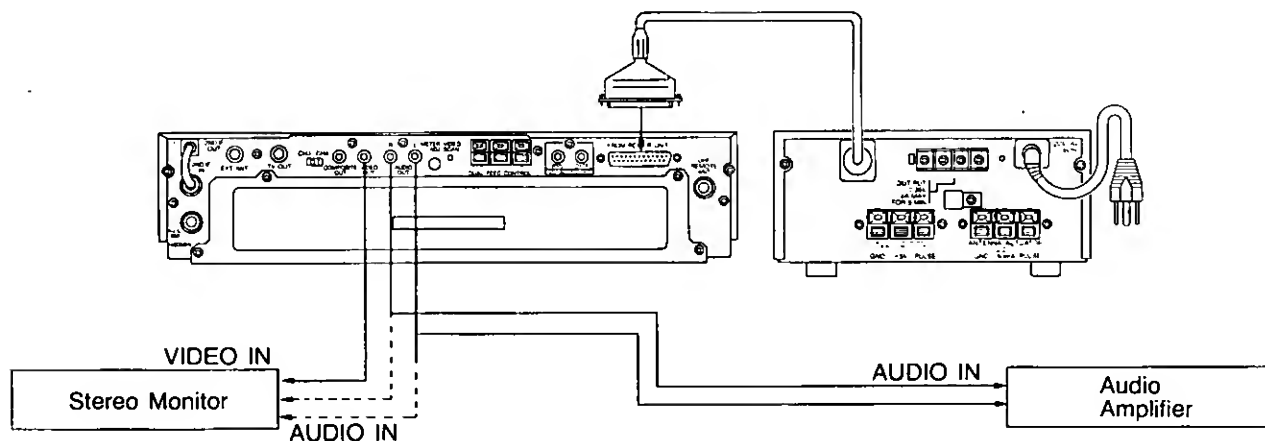
- To receive an ordinary TV broadcast, turn the receiver OFF.

- The CRD-4500R has a built-in RF modulator with RF output (TV OUT) on either Channel 3 or 4. Unless a monitor is used, the RF output will normally connect to the TV set.



3 AUDIO/VIDEO OUTPUT TERMINAL

- The receiver audio out and video out terminals may be used at the same time as the RF output (TV OUT).

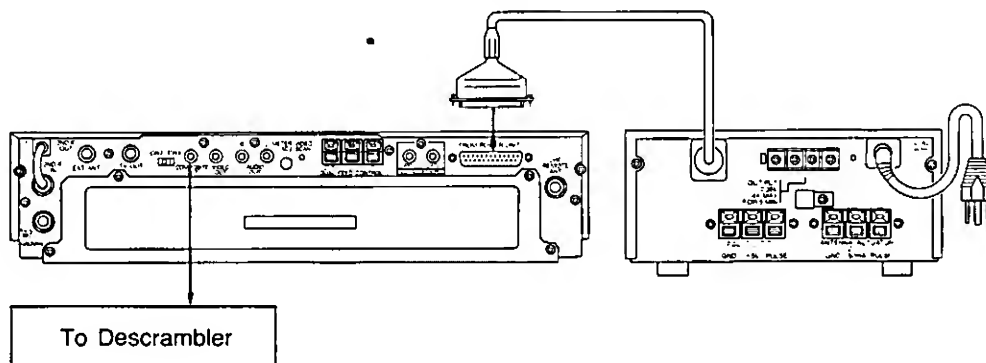


Note:

The audio to a monaural monitor can be connected to either the R or L audio output terminal.

4 COMPOSITE OUT TERMINAL

- In case of connecting a descrambler other than VideoCipher II, connect it to the composite out terminal.



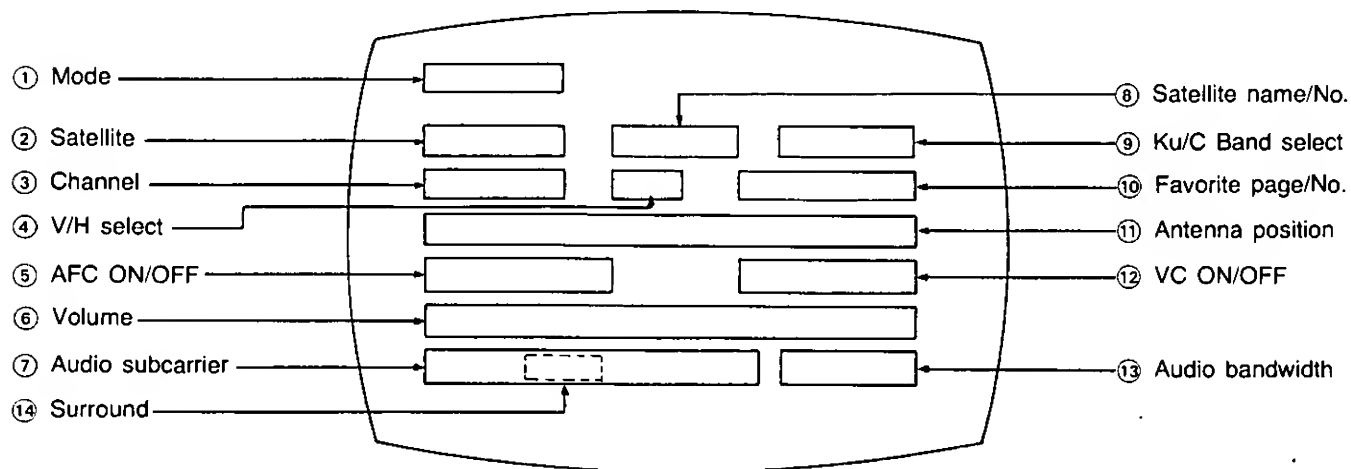
ON-SCREEN DISPLAYS

- The CRD-4500 generates a variety of on-screen informational displays. The full display indicates your current satellite, channel & favorite channel, polarity, antenna position, audio volume level, and more. This information appears automatically whenever you make any changes or adjustments. You can also check your setting at any time by pressing the **DISPLAY** button on the remote controller.

1 Normal on-screen display

- When the equipment is turned on and the **DISPLAY** button on the remote controller is depressed, the following data will be displayed on TV or the monitor screen connected to the equipment.

On-Screen Display's basic formation



- Data input choices for the ordinary operation

No.	PARAMETER	DATA INPUT CHOICES	No.	PARAMETER	DATA INPUT CHOICES
①	Mode	Set up or blank	⑧	Satellite name/No.	name No...1~9
②	Satellite	Automatically appears by satellite name ⑧. (*1)	⑨	KU/C Band select	Ku BAND or C BAND
③	Channel	C band...CH1~CH24 Ku band...CH1~CH32	⑩	Favorite page/No.	18 CHs. FAV1-1~FAV1-9, FAV2-1~FAV2-9 (*2)
④	V/H select	VERT or HOR	⑪	Antenna position	0000~9999
⑤	AFC ON/OFF	ON or OFF	⑫	VC ON/OFF	ON or OFF (*3)
⑥	Volume	1~16 bars	⑬	Audio bandwidth	WIDE or NARROW
⑦	Audio subcarrier	5.20~8.60 MHz	⑭	Surround	"S" or blank

Note: *1... Displays name of pre-stored satellite.

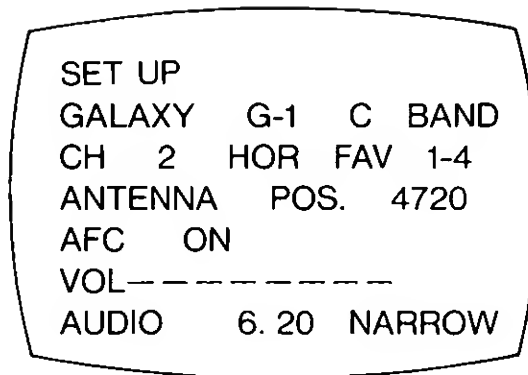
*2... Displays when program received has been stored in Favorite Channel memory.

*3... Displays only when the VideoCipher II signal is being received.

[Example]

A typical display appears below:

- ①.....Setup mode
- ②.....Galaxy
- ③.....CH2
- ④.....Horizontal
- ⑤.....AFC ON
- ⑥.....Volume is 8 bars
- ⑦.....6.20MHz
- ⑧.....G-1
- ⑨.....C Band
- ⑩.....FAV 1-4
- ⑪.....4720
- ⑫.....VC OFF
- ⑬.....NARROW



2 VideoCipher II on-screen display

When you receive the VideoCipher II signal, the receiver displays additional data on your TV screen.
For details, please see page 23~26.

3 Favorite mode on-screen display

You can program into memory up to 18 of your favorite channels on any satellite.
For details, please see page 21.

PROGRAMMING AND OPERATIONS

1. General Information

The CRD-4500 is designed for automatic operation and simplified installation.

Pre-stored in the memory are the names, relative locations, format and frequency band of over 20 satellites with provisions for storing 10 new satellites when they are launched into orbit.

The set-up mode is accomplished using the remote controller with no programming controls located on the receiver. After Set-up, it is extremely simple to change various settings from the remote controller without resorting to the set-up mode. AFC ON or OFF, video fine tune, audio tuning, audio bandwidth, antenna fine positioning may all be changed from the remote controller and are automatically stored in memory on a per-channel basis after adjustment.

Satellite selection, channel selection, and audio tuning may be done either by direct access using the 10 number buttons, or by using the appropriate slew controls.

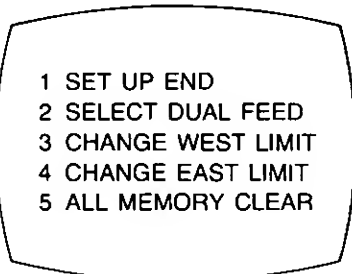
2. Single Satellite Operation with Fixed Antenna

■ Indication with means button on remote controller and front panel of the receiver.

1. Program Menu

Press PRG.

- Set-up menu will be displayed unless unit has been previously programmed. [Fig. 1]



1 SET UP END
2 SELECT DUAL FEED
3 CHANGE WEST LIMIT
4 CHANGE EAST LIMIT
5 ALL MEMORY CLEAR

[Fig. 1]

- If unit has been programmed display will show as [Fig. 2].

Press 1 then PRG.



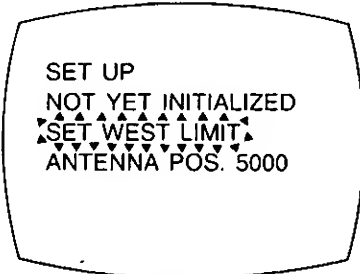
1 SET UP
2 PARENTAL LOCK

[Fig. 2]

2. Clear Memory

Press 5.

- All Memory Clear, then press 9 1 ENTER within 5 seconds.



SET UP
NOT YET INITIALIZED
SET WEST LIMIT
ANTENNA POS. 5000

[Fig. 3]

3. Displays

- See [Fig. 3].

4. Limits

Press **ENTER**, wait 5 seconds press **ENTER** again.

5. Feed

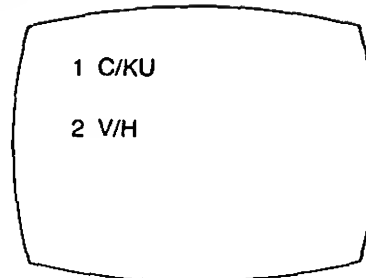
Press **PRG**.

Set up menu is again displayed. (See [Fig. 1])

Press **2** Select Dual Feed. Display will show as [Fig. 4].

Press **1** for C Band or Ku Band single feed or C Band/Ku Band dual band feed.

2 for C Band or Ku Band dual feed (H & V).



[Fig. 4]

6. Satellite

Select satellite by pressing **SAT** **NUMBER BUTTONS** (LETTER)
NUMBER BUTTONS (NO.)

- This will automatically set the channel/polarity format for that satellite.

7. Skew

When the satellite is recognized adjust the skew using the **<** **>** buttons on an even channel.

The word SKEW will be displayed on the screen during the adjustment, SKEW flashes until the skew limit is reached and the indication stops flashing. Repeat the skew adjustment for an odd channel.

8. Format

If necessary on a Ku Band satellite, set polarity for each channel by using **H/V** button on remote controller while tuning each channel.

9. Program

When all adjustments above are completed press **ENTER** to enter all settings into memory.

10. Operate

Press **PRG** **1** "SET UP END" to go back to normal operation.

3. Multiple Satellite Operation with Motor Drive Antenna

■ Indication with means button on remote controller and front panel of the receiver.

1. Program Menu

Press PRG .

- Set-up menu will be displayed unless unit has been previously programmed. [Fig. 1]

- If unit has been programmed display will show as [Fig. 2].

Press 1 for SET UP, then PRG .

2. Clear Memory

Press 5 .

- All Memory Clear, then press 9 1
 ENTER within 5 seconds.

3. West Limit

- Use E (EAST) W (WEST) buttons to position antenna to desired west limit.
Press ENTER to set west limit into memory.

Note: 1. If antenna moves in wrong direction, reverse ± 36 V leads to motor at the power supply.

2. Turn on video scan to locate most westerly and (easterly) satellites if necessary.

4. East Limit

- Use E (EAST) W (WEST) buttons to position antenna to desired east limit.
Press ENTER to set east limit into memory.

5. Feed

Press PRG .

After setting the limits the set up menu should be displayed again. (See [Fig. 1])

Press 2 Select Dual Feed. Display will show as [Fig. 4]

Press 1 For C Band or Ku Band single feed or C Band / Ku Band dual band feed

2 For C Band or Ku Band dual feed (H & V)

6. Satellite

Press (WEST) buttons on remote controller, or press button on front panel of the receiver.

The name of the most easterly available Satellite appears automatically.

Note: 1. If it is not desired to program that satellite into memory, skip to the next satellite by pressing (WEST).

2. If it is desired to program the satellites in an arbitrary sequence, press (LETTER) (NO.) to select a particular satellite.

3. When it is desired to program a satellite not listed on table 1, use the system described in section 10.

Press (WEST) button again.

Search for the most easterly satellite using video scan, or if a known channel is active, set the receiver to that channel.

7. Skew

When the satellite is recognized adjust the skew using the buttons on an even channel.

The word SKEW will be displayed on the screen during the adjustment, SKEW flashes until the skew limit is reached and the indication stops flashing. Repeat the skew adjustment for an odd channel.

8. Polarizer Control/Format

The CRD-4500 has been pre-programmed with each satellite format (horizontal or vertical polarization) according to the program guides. If it appears that the format on any satellite seems to be opposite to the pre-stored information then follow one of the procedures below:

- A) (Preferred) Rotate the feed horn 90 degrees without changing the pre-programmed format.
- B) Re-program the format for each satellite by using the button on the remote during the setup mode.

9. Memory

Press to set antenna position and skew settings into memory.

10. Additional Satellites

To select the next satellite press (WEST) or enter satellite name directly (LETTER) (NO.) and repeat 6, 7, 8 and 9 steps above.

11. New Satellites

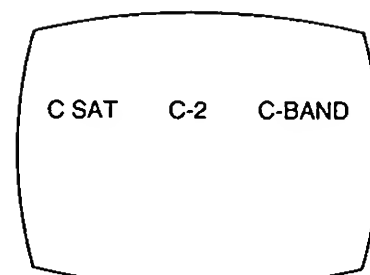
Satellite Name

C is for C-Band satellite.

O is for Ku-Band satellite.

Press **SAT** **C** **2** ~ **C** **9** for C-Band additional [Fig. 5-①]
or **SAT** **O** **1** ~ **O** **9** for Ku-Band additional [Fig. 5-②].

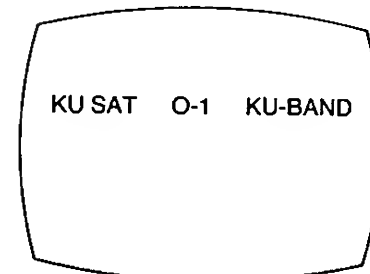
Repeat 6, 7, 8 and 9 steps above.



[Fig. 5-①]

12. End Programming

After programming all desired Satellites press **PRG** **1** "SET UP END".



[Fig. 5-②]

13. Special Instructions

To cancel or reposition a satellite in memory, or change satellite name.

- Cancel** — Press **PRG** to return to SET UP MODE indicating satellite to be cancelled. Press **CANCEL** and after 5 seconds press **CANCEL** again.
- Reposition** — Locate the new position and enter the satellite name. Press **ENTER** — an ERROR 2 message is displayed. Press **ENTER** again after 5 seconds.
- New Satellite Name** — To enter a new satellite name at a programmed position, go to the set-up mode and enter the new satellite name. Press **ENTER** — and an ERROR 3 message is displayed. Press **ENTER** again.

◆ TABLE 1

NAME	NUMBER	SATELLITE	Ku or C	LONGITUDE	POL/CH 1
S	2	Spacenet 2	C	69°W	H
F	2	Satcom F2R	C	72°W	V
G	2	Galaxy 2	C	74°W	H
K	2	Satcom K2	Ku	81°W	H
F	4	Satcom F4	C	83°W	V
K	1	Satcom K1	Ku	85°W	H
T	2	Telstar 302	C	86°W	V
S	3	Spacenet 3	C	87°W	H
G	3	Galaxy 3	C	93.5°W	H
T	1	Telstar 301	C	96°W	V
W	4	Westar 4	C	99°W	H
A	1	Anik D1	C	104.5°W	H
A	2	Anik D2	C	110.5°W	H
M	1	Morelos 1	C	113.5°W	H
O	1	Ku-SAT (Anik C3)	Ku	117.5°W	V
S	1	Spacenet 1	C	120°W	H
W	5	Westar 5	C	122.5°W	H
T	3	Telstar 303	C	125°W	V
F	3	Satcom F3R	C	131°W	V
G	1	Galaxy 1	C	134°W	H
F	1	Satcom F1R	C	139°W	V
F	5	Satcom F5	C	143°W	V

4. Operation Using Remote Controller

■ Indication with means button on remote controller.

1. Satellite and Channel Selection

Direct selection of programmed satellite

[Example]

Press SATF14 for SATCOM IR ch 4
or SATT115 for TELSTAR 301 ch 15.

The satellite letter must be selected within 5 seconds after pressing SAT.

The satellite number must be selected within 5 seconds after selecting satellite letter.

The channel number may be selected at any time afterwards.

2. Satellite Selection

Slew Mode

Press SATE (EAST) or W (WEST). The next programmed satellite in the arc will be selected. If the E or W buttons are held down, the satellite names slew through. The antenna starts to move 2 seconds after the desired satellite is selected. EASTWEST controls on the front panel on the receiver are used to provide the same operation.

3. Channel Selection

Direct Selection

Press 1 button for channels 1-9, 2 buttons for channels 10 and above.

4. Channel Selection

Slew Mode

Press Channel ^V to slew through the channels.

5. Antenna Fine Positioning

Press E (EAST) or W (WEST) for fine positioning of the antenna. The antenna can be moved 8 counts in either direction. The new position will be stored in memory 5 seconds after fine positioning.

6. AFC/Video Fine Tuning

AFC (Automatic Fine Tuning) is normally ON. When Terrestrial Interference is present, or with some Ku Band channels, it may be necessary to off-tune the receiver. Press AFC to turn AFC OFF and then use Fine Tune ^ and V until the best picture is received. These settings will be automatically stored in memory.

7. Audio Tuning

Direct Selection

Press **AUDIO** and 3 digit number for subcarrier frequency.

i.e. **AUDIO** **6** **2** **0**

This frequency will be automatically stored in memory.

8. Audio Tuning

Slew Mode

Press Audio Tune **^** **v** to slew through all subcarrier frequencies. The last setting will be automatically stored in memory.

9. Audio N/W (Narrow/Wide)

Some audio programs are transmitted in a narrow band mode. After tuning the subcarrier, use the **N/W** button to select the appropriate bandwidth.

The last setting will be automatically stored in memory.

10. Favorite Channel

Up to 18 favorite channels may be stored in the favorite channel memory, 9 on favorite page 1, and 9 on favorite page 2. To store a channel, tune to the desired program press **FAV** for favorite page 1, or **FAV** **FAV** for favorite page 2.

Press **ENTER** and **NUMBER BUTTONS** (NO.) to place the program that is being received into the favorite channel memory, in that position.

To cancel a stored selection press **FAV** **CANCEL** **NUMBER BUTTONS** (NO.)

To select a stored channel press **FAV** **NUMBER BUTTONS** (NO.) on favorite page 1 or **FAV** **FAV** **NUMBER BUTTONS** (NO.) on favorite page 2.

11. Parental Lock

When the parental lock is on, viewing is restricted to the programs stored in the favorite channel memory. All other programs are blanked out by a blue screen and the audio muted. To select the parental lock mode, program the permissible programs into the favorite channel memory. Press **PRG** **2** for parental lock. [Fig. 2]
If the memory has been cleared, enter a new 4 digit password, or use the 4 digit password already entered.

Press **ENTER** .

Then press **1** to turn parental lock ON or OFF. [Fig. 6. 7]

Note: When parental lock is on, the SET UP mode is inhibited including the ALL MEMORY CLEAR mode.



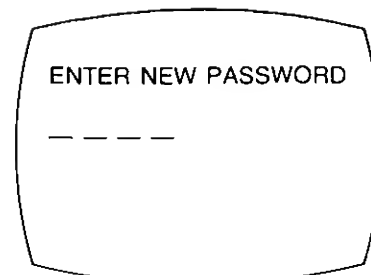
1 SET UP
2 PARENTAL LOCK

[Fig. 2]

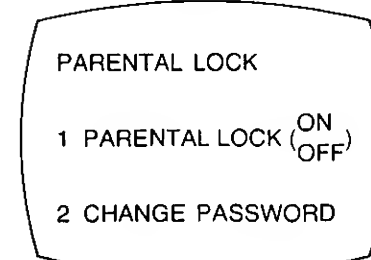
Press **NUMBER BUTTONS** (NO.) for 4 digit password (any desirable number).
Now the password is registered.
Parental lock will be in ON or OFF mode by entering password.

Note:

If you forget or lost your password, you can recover this data by MASTER PASSWORD.
Please refer to the page 29 of this instructions.



[Fig. 6]



[Fig. 7]



[Fig. 8]

12. Changing Password

- 1) Press **PRG**. [Fig. 2]
- 2) Press **2** for parental lock. [Fig. 6]
- 3) Press **ENTER**. [Fig. 7]
- 4) Press **2** for changing password mode. [Fig. 8]

Enter password by number buttons, then **ENTER**.
Password is indicated at on-screen at the 1st entering.
Mark "*" will be indicated for 2nd time entering of password.

13. Surround Sound

This mode provides greatly improved stereo sound when the receiver is connected to a stereo system or stereo monitor. VideoCipher II stereo audio is greatly enhanced and monaural transmissions sound as if they are broadcast in stereo. The surround sound mode may be selected by pressing **SURROUND** on the remote controller.

Note: Surround Sound does not operate on RF out, only operable on baseband audio with stereo system or stereo monitor.

14. Volume Control

The Volume **^** **v** allows adjustment of volume for both RF and baseband outputs in 16 steps.
The on-screen display indicates the volume level when the buttons are depressed.

Note: When using a Video Cassette Recorder to record a program from the CRD-4500, adjust the volume to full maximum level.

15. Mute

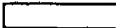
The **MUTE** button mutes the audio. To hear the audio press the **MUTE** button again or press Volume **^** **v** buttons.

ADDITIONAL NOTICE:

UHF Remote Control

The normal range of the UHF control is greater than 150 feet, with no obstructions. Houses where a greater range is required, or that have several walls in the path of the signal may have problems with reliable remote operation. In these cases it may be necessary to relocate the UHF receiving antenna to a different location. Unscrew the antenna from the back of the receiver and reconnect it using a length of coaxial cable while testing for a location where signals can be received reliably from all control areas.

5. VideoCipher II Operation

Note: Indication with  means button on remote controller and front panel of the receiver.

■ VideoCipher II Authorization

To view scrambled programming, you will need to be authorized from your local program supplier or contact the program distributors directly. They will set up an account for you and authorize your unit to descramble selected channels.



You can obtain the program distributor's telephone number by tuning your satellite receiver to the channel that you wish to watch. Most services broadcast subscription information on audio subcarriers (usually 6.8 MHz). Some VideoCipher II channels will display a subscription phone number on the screen when you tune them in.

Your program distributor will need your address number, which can be read off your TV screen by pressing a few buttons on the remote controller.

1 Getting Authorized

1. Turn your TV satellite system ON.
2. Use your program guide to check which satellite and channel has the VideoCipher II service that you wish to subscribe to.
3. Tune to the VideoCipher II channel. The VIDEOCIPHER SIGNAL indicator will light up, turn ON VideoCipher II, you will see only a black screen (or text) until you subscribe to the channel and receive authorization.

When you are tuned to a VideoCipher II channel, the VIDEOCIPHER SIGNAL indicator should be ON.


4. Press  and  on the remote controller. Your TV will display the following:

A. Your Authorization (Address) Number will appear on the screen. The first 8 digits of this number should be the same as those in the window on the back of your receiver. The last 4 digits on the screen are for Program Distributor use. Write all 12 numbers in the page 1 of this Manual.


B. Your TV should also show 2 signal strength numbers. For the best system performance, both numbers should be between 45 and 50. For example, 46/48 is good, but 43/41 is not. Maximum strength is 50. Dish alignment and weather conditions can affect the VideoCipher signal strength.

Some VideoCipher II channels may require video fine tuning to improve picture quality and reduce the channel lockup time.

5. Call the program service that you want to subscribe to. They will ask for your Authorization Number and other billing information.
6. Once the Authorization Messages are received by your receiver, the SERVICE ID line will say something other than NONE. You will probably see [AO] after SERVICE ID. The LOCATION line will say SET.



UNIT 1000 0082 FF 8A
SIGNAL LEVEL: 48/45
SERVICEID: NONE
LOCATION: NOT SET



UNIT: 1000 0082 FF 8A
SIGNALLEVEL: 48/45
SERVICEID: AO
LOCATION: SET

7. Press **VIEW**. You should see the current program on the VideoCipher II channel. You should also see information about the program (Title, Running Time, Start Time). Check your program guide to verify that you are on the correct channel. This text information will drop off the screen in about 3 seconds. If you wish to display it again, press **VIEW**.

Note: Some VideoCipher channels may not have title display when you press **VIEW**.



2 VIDEOCIPHER II SETUP

Once you have received authorization, you can turn on and view a VideoCipher II channel just as you would on unscrambled channels. However, VideoCipher II channels provide additional features and services. Here's how to use them.

The following features can be used only on VideoCipher II channels.

VIEW

Press the **VIEW** to see information about the current program being broadcast on the channel. This will include program title, running time and rating.

After 3 seconds, this program information will disappear from the screen.

The **VIEW** is also used when you want to exit from a VideoCipher II setup routine without completing it, to watch your regular program.

HELP

Press **HELP** when you are using VideoCipher II features and need an explanation of the procedure. You will be able to read HELP messages on your TV. If you still cannot understand the procedure, press **VIEW** and consult the Manual.

SETUP

Press **SETUP** is used with the number buttons to customize your VideoCipher II features.

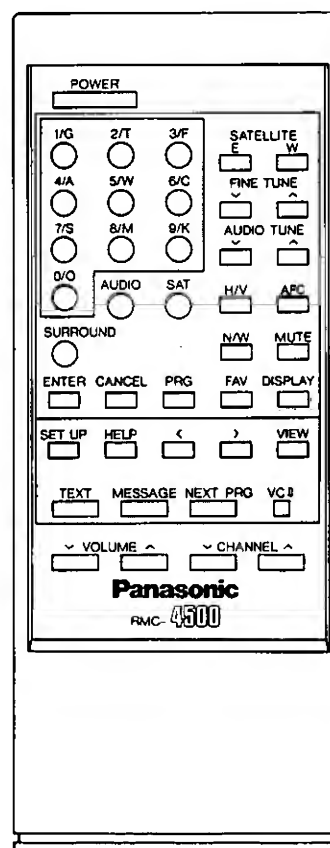
If you press **SETUP**, you will see the following menu on your TV.

1. Installation
2. Unit Setting
3. Rating Ceiling
4. Rating Password

You can choose one of these VideoCipher II setup activities by pressing one of these number buttons.

1. Installation

Press **SETUP** and **1** to display your Authorization Number and Signal Strength on your TV screen. Your program supplier will need these numbers to authorize you for VideoCipher II program reception.



2. Unit Setting

Personal Messages

VideoCipher II program suppliers may send you messages about your service subscription.

These may concern your account balance, new service, or other information. Messages can be read on your TV.

1. A flashing asterisk [*] will appear on the screen to inform you that a message is stored for you.
2. To read the message, press **MESSAGE**.

You can set your system so that the [*] does not show on the screen.

1. Press **SETUP** and **2**.
2. The display will read: MESSAGE PROMPT ENABLED (ON) or MESSAGE PROMPT DISABLED (OFF).
3. Press **2** to switch back and forth and set the prompt ON or OFF.



AUDIO MODE IS
PRIMARY
(PRESS '1' FOR)
(ALTERNATE)
MESSAGE PROMPT IS
ENABLED
(PRESS '2' TO)
(DISABLE)

Second Language Audio

Some VideoCipher II channels may offer second languages on their programs.

1. To listen to an ALTERNATE language, press **SETUP** and **2**.
2. Press **1** to select PRIMARY (usually English) or ALTERNATE (the second language).

3. Ratings Ceilings

Your receiver allows you to set a rating limit for you VideoCipher II channels.

Your receiver uses rating ceilings similar to the G, PG, PG-13, R and X ratings used by the motion picture industry.

You can prevent viewing all rated VideoCipher II channel programs above the level that you set it at.

For example, if you set the level at PG-13, your system will allow only G, PG and PG-13 rated programs. Both R and X-rated programs will be blocked.

1. Press **SETUP** and **3**.
2. Enter your password if one has been set, if no password has been set, proceed to the next step.
3. Use the **<**/**>** to change the rating ceiling.



RATING CEILING:R
PROGRAM RATING:G
(ENTER THE RATING)
(PASSWORD:)



RATING CEILING:R
PROGRAM RATING:G
(, , OR 'ENTER')

4. Rating Password

Passwords are used to control access to the rating ceilings. We suggest that you pick a password number that is easy to remember: your zip code, date of birth phone number, street address.

If you forget your password, you will need to contact your program distributor to have it reset.

If you don't want password control:

1. Press **SETUP** and **4**.
2. Press **ENTER** twice when the screen prompts you to enter a new password.

To set or change a password:

1. Press **SETUP** and **4**.
2. Key in your new password (up to 8 digits) and press **ENTER**.
 - a) If the system has a password stored, you will need to key it in and press **ENTER** before the system will accept a new one.
 - b) Key in the new password, and press **ENTER**.
3. The screen will ask you to enter the new password a second time and press **ENTER** to confirm it.

The screen will then tell you that the password has been changed and then return you to the main SETUP menu.



Program Messages

VideoCipher II program suppliers offer a wide variety of services, some of which require restrictions on viewing. When there is a viewing restriction, you will see one of the following messages, rather than the program that is showing:

No Subscription

This message indicates that your receiver has not been authorized to receive this channel, or you have lost authorization. Contact your program supplier to receive or renew your authorization.

Blackout

This message indicates that a specific program is not available in your geographic area.

Program Locked Out

This message will appear if the program currently being broadcast on that channel exceeds the rating ceiling that you have set. You must change the rating ceiling if you want to view the program. (See Rating Ceilings and Rating Password).

Next Available Program

This VideoCipher II feature allows you to quickly check upcoming programs.

1. Turn to the VideoCipher II channel that you wish to watch.
2. Press **NEXT PRG**.
3. You will see a message listing the title, rating, start time and other information about the next program.
4. You may also see one of the other VideoCipher II service messages (No Subscription, Blackout, etc.)

Text Services

Some VideoCipher II channels may broadcast news bulletins, program information and other text over the channel.

To view these services:

1. Turn to a VideoCipher II channel.
2. Press **TEXT**.
3. Use the **</>** to move back and forth within the text.
4. You can move to a specific page by keying in a 3-digit page number. For example, page 6 would be 006. It will usually take several seconds before the page is displayed.
If you request a page that is not in the file (for example page 006 in a 5 page file), the screen will not change.

DIAGNOSTICS

■ Error Indication (Error is indicated by a flashing message)

No.	ON SCREEN	CAUSES	METHODS OF CORRECTION
①	ERROR-2	When trying to enter the same satellite name/No. into memory at more than one satellite positions.	Press ENTER to release the error. The satellite is stored at the position selected later.
②	ERROR-3	When trying to enter more than two satellite into memory at one single satellite positions.	Press ENTER to release the error. The priority is given to the name of the satellite selected later and stored accordingly.
③	ERROR-6	When feedback pulses are not being received. A. When the actuator is fully extended or retracted in the initialize mode or in the manual mode. B. When the actuator is not correctly connected with CRD-4500P or the connection is broken. (no pulse being received)	Press EAST / WEST to move the antenna position slightly in the reverse direction. Check that antenna is not into a stop, or that cable connections to actuator are secure.
④	ERROR-8	"ERROR-2" and "ERROR-3" occurred simultaneously. (The same satellite name was tried to be stored at the same antenna position.)	Press CANCEL . This information has been already stored.
⑤	ERROR-!	Memory error	Turn the power off and Call your dealer.
⑥	THERMAL OVER LOAD	If the internal temperature (CRD-4500P) increases and the thermal protective circuit (Disable circuit) functions, the unit will not be operative.	Turn unit OFF to allow to cool. (Wait approx. 10 min. to operate) Check actuator and antenna for free movement.

TROUBLESHOOTING

Before calling for service, determine symptoms and attempt these simple solutions shown below. These checks apply to your TV or monitor as well as the CRD-4500.

PROBLEM	SYMPTOM	CHECK
No operation	No indicator lights	<ul style="list-style-type: none"> ● Power cord ● Call dealer
Picture Sound	None	<ul style="list-style-type: none"> ● Brightness and sound controls on TV Monitor ● Call dealer
Picture Sound	Noisy (Snow) distorted	<ul style="list-style-type: none"> ● No transmission on channel selected try another channel ● Antenna adjustment ● Check cable connections ● TV not tuned to output channel of receiver CH3/CH4 ● Check polarization and antenna position ● Call dealer
Picture	Horizontal hum (Bar rising across screen caused by a ground loop)	<ul style="list-style-type: none"> ● Ground loop problem ● Call dealer
Remote control	Doesn't work (CRD-4500R is still operable from front panel controls)	<ul style="list-style-type: none"> ● Test at different distances ● Make sure UHF receiving antenna is connected properly ● Replace batteries ● Call dealer
Antenna	Doesn't move	<ul style="list-style-type: none"> ● Check antenna for obstruction ● Check electrical connections from receiver to the power supply and antenna. ● Check antenna actuator load, if too heavy caused by freezing. ● Call dealer

SPECIFICATIONS

Satellite Receiver CRD-4500R

IF

Input Frequency: 950–1450MHz
 Input Impedance: 75 ohms
 Noise Figure: 15dB max.
 Input Signal Level: –65~–30dBm
 Number of Channels:
 C-Band 24ch
 Ku-Band 32ch
 Bandwidth (–3dB): 27MHz, typical
 Threshold: less than 8dB C/N
 Demodulator: PLL Demodulator

Video

De-emphasis: 525 lines, CCIR Rec 405-1
 Frequency Response: 10kHz~4.2MHz, ± 1 dB
 DG & DP: 5%, 5°
 Output Impedance: 75 ohms
 Output Level: 1Vp-p, typical

Composite

Output Impedance: 75 ohms
 Output Level: 1Vp-p, typical
 Frequency Response: 10kHz~8MHz, ± 2 dB

Audio

Subcarrier Audio:
 Tuning Range 5.2~8.6MHz
 Bandwidth 150kHz, 280kHz
 Mode Mono
 Frequency Response 50Hz~15kHz, ± 2 dB

VC Mode Audio:

Mode Stereo/Mono
 Frequency Response 20Hz~18kHz, ± 2 dB
 Output Impedance: 600 ohms
 Output Level: 1Vp-p, typical

VHF Output

Impedance: 75 ohms
 Channel: CH3/CH4
 Output Level: 65dB μ V, typical
 LNB Power: 18V DC, 300mA

General

Power Source: 117V AC $\pm 10\%$
 Dimensions (W×H×D): 14 $\frac{3}{16}$ "×2 $\frac{15}{16}$ "×11"
 (360×75×280mm)
 Weight: 9 $\frac{3}{4}$ lbs. (4.4kg)
 Polarizer: Servo output

Specifications subject to change without notice.

Power Supply CRD-4500P

Output: 36V DC, 4A max,
 for 5 minutes
 Sensor Type: Hall effect;
 Reed switch;
 Optical switch
 Power Consumption: 46W
 Dimensions (W×H×D): 7 $\frac{3}{32}$ "×2 $\frac{15}{16}$ "×11"
 (180×75×280mm)
 Weight: 11 $\frac{1}{8}$ lbs. (5.0kg)

MASTER PASSWORD: 3872

PANASONIC SATELLITE RECEIVING

PRODUCT LIMITED WARRANTY

Panasonic Industrial Company will, at its option, either repair or replace this Panasonic Satellite Receiving Product, free of charge, in the U.S.A. and Puerto Rico, in the event of a defect in materials or workmanship as follows:

PARTS: New or rebuilt parts in exchange for defective parts for one (1) year after date of original purchase. Batteries are not warranted.

LABOR: Mail-in service for one (1) year after original purchase.

SERVICE PROCEDURE: If a problem with the Panasonic Satellite Receiving Product develops during or after the warranty period, contact your dealer for assistance and instructions or call toll-free 800-447-4700 to obtain the name of the nearest Panasonic Authorized Servicenter.

TECHNICAL ASSISTANCE: If you have difficulty operating this Panasonic Satellite Receiving Product please contact your dealer or Distributor first.

If further assistance is required please contact Panasonic Technical Support Dept, at (201) 392-HELP, 9:00AM to 5:00PM, E.S.T.

If instructed to return the product to Panasonic Industrial Company Service Division, or Authorized Servicer, carefully pack and send it prepaid, adequately insured, and, if possible in the original carton. Attach a postage-affixed letter detailing the complaint, to the outside of the carton and tape a piece of paper with your name and address to the product.

This warranty only covers failures due to manufacturing defects which occur during normal use. It does not cover failure due to damage which occurs in shipment or failures which are caused by products not supplied by Panasonic Industrial Company or Panasonic Company or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, adjustment of controls or improper maintenance, modification, inadequate signal pickup or service by anyone other than your dealer or the Panasonic Servicenter or damage that is attributable to acts of God.

LIMITS AND EXCLUSIONS: There are no other express warranties except the one listed above.

PANASONIC INDUSTRIAL COMPANY assumes no responsibility or liability to reimburse or compensate owners/users of an IRD (integrated receiver/descrambler unit) for the loss of paid subscription television programming, such as HBO, Showtime, Cinemax, etc., in the event your IRD unit should require servicing. THE OWNER/END-USER OF THE IRD UNIT IS ADVISED TO NOTIFY EACH PROGRAMMER BEING PAID A SUBSCRIPTION FEE THAT YOUR IRD UNIT IS 'out-of-service' AND THAT YOU WISH TO SUSPEND YOUR SUBSCRIPTION DURING THE PERIOD YOUR IRD UNIT IS INOPERABLE.

PANASONIC INDUSTRIAL COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY BREACH OF THIS WARRANTY. DURATION OF IMPLIED WARRANTIES, IF ANY, IS LIMITED TO ONE (1) YEAR.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitation on how long an implied warranty lasts, so the above exclusion or limitation may not apply to you.

This limited warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

If a problem with your product is not handled to your satisfaction, then write to the Consumer Affairs Division at the following address:

AV Systems Group
Panasonic Industrial Company, Division of Matsushita Electric Corporation of America
One Panasonic Way Secaucus, New Jersey 07094
Attn: Customer Care 2A3.

Panasonic[®]

VIDEO/COMMUNICATION DIVISION

Panasonic Industrial Company
Division of Matsushita Electric Corporation of America
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